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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/314,927	05/20/1999	TAKASHI KOBAYASHI	35.C13533	5816

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

ODLAND, DAVID E

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/314,927

Applicant(s)

KOBAYASHI ET AL.

Examiner

David Odland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) ✓
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

2. Claim 2 is objected to because of the following informalities:

Claim 2 recites "...said transmission means supports plural different transfer rates..." in lines 2 and 3. This segment of the claim is written with improper English grammar. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "...said transmission means retransmits...at a transfer rate lower than the said predetermined transfer rate, according to the presence or absence of the response..." in lines 2-5. This limitation is confusing; it is unclear, what determines when the transmission means will retransmit at a lower transfer rate than the predetermined transfer rate.

Claim 12 recites the limitation "...the predetermined information data..." in line 3. There is a lack of antecedent basis for this limitation of the claim.

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Claim 12 also recites the limitation "...and transmits said predetermined packet with the predetermined transfer rate..." in lines 5-7. It is unclear what is meant by 'transmits...with the predetermined rate'.

Claim 13 recites the limitation "...discrimination means identifies...predetermined transfer rate as the maximum transfer rate, according to the presence of or absence of the response from the destination..." in lines 2-5. This limitation is confusing; it is unclear what is how the discrimination means identifies the maximum transfer rate.

Claim 14 recites the limitation "...said discrimination means identifies said predetermined transfer rate as the maximum transfer rate, in case all the responses from the destinations can be received within a predetermined period..." in lines 2-6. It is unclear what is meant by 'in case all the responses from the destinations can be received within a predetermined period'.

Claim 14 is also rejected because it depends on claim 13.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 11,12, 15 and 16, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent number 5,632,016 to Hoch et al., hereafter referred to as Hoch.

Referring to claim 1 Hoch discloses a data communication apparatus comprising transmission means for transmitting a predetermined packet to at least a destination (a serial bus for sending data packets between nodes [see claim 1]), wherein said predetermined packet is transmitted at a predetermined transfer rate (the speed at which the data request packet was transmitted is used for retransmitting the data requested back to the source node [see abstract]) and discrimination means for discriminating a maximum transfer rate to said destination, according to a response to said predetermined packet (topology means for determining the maximum speed used for the transmission of the packet [see abstract, column 1 lines 62-67 and column 2 lines 1-13]).

Referring to claim 2, Hoch discloses the communication apparatus as discussed above. Furthermore, Hoch discloses that the said transmission means supports plural different transfer rates (the serial bus operates at multiple transmission rates [see abstract]).

Referring to claim 3, Hoch discloses the communications apparatus as discussed above. Furthermore, Hoch discloses that the said transmission means transmits the said predetermined packet at the maximum supported transfer rate (the maximum rate of transmission over the serial bus is determined and used to transmit the data packets [see column 1 lines 62-67 and column 2 lines 1-13]).

Referring to claim 4, Hoch discloses the communications apparatus as discussed above. Furthermore, Hoch discloses that the said transmission means retransmit said predetermined packet at a transfer rate lower than said predetermined transfer rate

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(packets are transmitted over the bus at a speed lower than the initial maximum speed [see column 1 lines 62-67 and column 2 lines 1-13]), according to the presence or absence of the response to said predetermined packet (the speed is determined when the request packet is retransmitted back to the source node [see column 1 lines 62-67, column 2 lines 1-13 and column 2 lines 39-42]).

Referring to claim 5, Hoch discloses the communications apparatus as discussed above. Furthermore, Hoch discloses that the said transmission means transmits predetermined information data at said maximum transfer rate after discriminating the maximum transfer rate to said destination (the serial bus speed is continually adjusted to an optimum maximum speed and so the transmitted packets are transmitted at the maximum transfer speed after adjusting the speed at which the packet is initially sent to the receiving node [see column 1 lines 62-67, column 2 lines 1-13 and column 2 lines 39-42]).

Referring to claim 11, Hoch discloses the communications apparatus as discussed above. Furthermore, Hoch discloses that the said transmission means has a function of automatically detecting a change in the connection configuration of a network (the maximum transmission rate depends on the bus topology map, which is used to indicate network configurations [see column 1 lines 62-67 and column 2 lines 1-13]).

Referring to claim 12, Hoch discloses the communications apparatus as discussed above. Furthermore, Hoch discloses that the said transmission means interrupts the transmission of the predetermined information data after detecting a

change in the connection configuration of the network (the speed of the packet transmission changes when there is a change in the topology of the bus network [see column 2 lines 1-13]) and transmits said predetermined packet with the predetermined transfer rate prior to re-start of the transmission of said information data (the request packet is transmitted across the bus at a maximum rate after the speed has been determined [see column 1 lines 62-67 and column 2]).

Referring to claim 15, Hoch discloses the communications apparatus as discussed above. Furthermore, Hoch discloses that the predetermined packet includes at least one of dummy data, a command inquiring the ability of said destination, ability of said source, a channel number assigned to said information data, and a connection ID indicating the logical connection relationship between said source and said destination (packets are transmitted which contain identification fields, which indicate the connection relationship between the source and destination [see column 6 lines 27-49]).

Referring to claim 16, Hoch discloses the communications apparatus as discussed above. Furthermore, Hoch discloses that the destination is connected to a bus-type network (the destination is connected to a serial bus [see Figure 1B]).

5. Claims 18-22 and 27-29 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent number 6,038,216 to Packer.

Referring to claim 18, Packer discloses a data communication method, comprising the steps of transmitting a predetermined packet to at least a destination (a first digital packet transmission station at a first end sends a first source packet to a

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second digital packet transmission station at a second end [see claim 1]), wherein said predetermined packet is transmitted at a predetermined transfer rate (the first digital packet is send at limited rate [see claim 1]) and discriminating a maximum transfer rate to said destination, according to a response to said predetermined packet (establishing a limit on the rate of packet transfer between the first digital packet transmission station and the second digital packet transmission station based on information in the acknowledgment packet sent back to the first digital packet transmission station by the second digital packet transmission station [see claim 1]).

Referring to claim 19, Packer discloses at least a destination (a second digital packet transmission station [see claim 1]) and a source (a first digital packet transmission station [see claim 1]) including means for transmitting a predetermined packet to said destination at a predetermined transfer rate (the first digital packet transmission station at a first end sends a first source packet to a second digital packet transmission station at a second end, at an explicit limited rate [see claim 1]), and means for discriminating a maximum transfer rate to said destination, according to a response to said predetermined packet (establishing a limit on the rate of packet transfer based on information in the acknowledgment packet sent back to the first digital packet transmission station by the second digital packet transmission station [see claim 1]).

Referring to claim 20, Packer discloses a computer program comprising the steps of transmitting a predetermined packet to at least a destination (a first digital packet transmission station at a first end sends a first source packet to a second digital

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packet transmission station at a second end [see claim 1 and pseudo-code in columns 11-18]), wherein said predetermined packet is transmitted at a predetermined transfer rate (the first digital packet is send at limited rate [see claim 1 and pseudo-code in columns 11-18]), and discriminating a maximum transfer rate between source and at least a destination, according to a response to said predetermined packet (establishing a limit on the rate of packet transfer between the first digital packet transmission station and the second digital packet transmission station based on information in the acknowledgment packet sent back to the first digital packet transmission station by the second digital packet transmission station [see claim 1 and pseudo-code in columns 11-18]).

Referring to claim 21, Packer discloses A data communication apparatus, comprising transmission means for transmitting a predetermined packet to at least a destination at a first transfer rate (the first digital packet transmission station at a first end sends a first source packet to a second digital packet transmission station at a second end, at an explicit limited rate [see claim 1]) and reception means for receiving a response to said predetermined packet from each of destinations (the first digital packet transmission station receives acknowledgement packets from a plurality of destination digital packet transmission stations [see claim 12]) wherein said transmission means determines whether or not to transmit said predetermined packet at a second transfer rate lower than said first transfer rate, according to the response from the destination (establishing, if need be, a lower limit of the rate of packet transfer between the first digital packet transmission station and the second digital packet transmission station

based on information in the acknowledgment packet sent back to the first digital packet transmission station by the second digital packet transmission station [see claim 12]).

Referring to claim 22, Packer discloses the data communications apparatus as discussed above. Furthermore, Packer discloses that the transmission means and said reception means support plural different transfer rates (the data rate between first and second digital packet transmission stations varies as the transmission window size is altered [see abstract and claim 1]).

Referring to claim 27, Packer discloses a data communication method, comprising steps of transmitting a predetermined packet to at least a destination at a first transfer rate (a first digital packet transmission station at a first end sends a first source packet to a second digital packet transmission station at a second end, at an initial rate [see claim 1]), receiving a response to said predetermined packet from the destination (the first digital packet transmission station receives an acknowledgment from the second digital packet transmission station [see claim 1]) and determining whether or not to transmit said predetermined packet at a second transfer rate lower than said first transfer rate, according to the response from each of destinations (based on the acknowledgement, the first digital packet transmission station, determines whether to inserting latency and thus lowering the data rate for the next transmission [see claim 1 and claim 4]).

Referring to claim 28, Packer discloses a data communication system, comprising at least a destination (a second digital packet transmission station [see claim 1] and a source including transmission means for transmitting a predetermined packet

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to said destination at a first transfer rate (a first digital packet transmission station at a first end sends a first source packet to a second digital packet transmission station at a second end, at an initial rate [see claim 1]), and reception means for receiving a response to said predetermined packet from each of destinations (the first digital packet transmission station receives acknowledgments from each station [see claim 12]), wherein said source determines whether or not to transmit said predetermined packet at a second transfer rate lower than said first transfer rate, according to the response from each of destinations (based on the acknowledgement, the first digital packet transmission station, determines whether to inserting latency and thus lowering the data rate for the next transmission [see claim 1 and claim 4]).

Referring to claim 29, Packer discloses a computer program comprising the steps of transmitting a predetermined packet to at least a destination at a first transfer rate (a first digital packet transmission station at a first end sends a first source packet to a second digital packet transmission station at a second end, at an initial rate [see claim 1 and pseudo-code in columns 11-18]) receiving a response to said predetermined packet from each of destinations (the first digital packet transmission station receives acknowledgments from each station [see claim 12 and pseudo-code in columns 11-18]), and determining whether or not to transmit said predetermined packet at a second transfer rate lower than said first transfer rate, according to the response from each of destinations (based on the acknowledgement, the first digital packet transmission station, determines whether to inserting latency and thus lowering the data

rate for the next transmission [see claim 1 and claim 4 and pseudo-code in columns 11-18]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoch in view of U.S. Patent Number 5,706,439 to Parker.

Referring to claim 6, Hoch discloses the communications apparatus as discussed above. Hoch does particularly disclose that the transmission means divides information data into segment data before being transmitted. However, Parker discloses of a transmission means which divides information data into one or more segment data (a stream of data is broken up into various size packets [see column 1 lines 29-67]), to generate one or more data packets from each segment data [the data stream is broken into multiple packets [see column 1 lines 29-67]), and transfers the data packet in succession (the packets are transmitted over a serial bus [see column 2 lines 13-45]). It would have been obvious to one skilled in the art at the time of the invention to use the transmission means, as taught by Parker, in the communications system of Hoch because, as Parker points out in column 2 line 4, such a transmission means method would minimize buffer and latency tolerance requirements.

Referring to claim 7, Hoch, in view of Parker, discloses the communications apparatus as discussed above. Furthermore, Parker discloses that the transmission means executes asynchronous transfer of said plural data packets (the data stream is broken up into multiple packets and transmitted asynchronously over a serial bus [see column 1 lines 29-67 and column 2 lines 1-18]).

Referring to claim 8, Hoch, in view of Parker, discloses the communications apparatus as discussed above. Furthermore, Parker discloses that the transmission means executes isochronous transfer of the plural data packets (the packets are transmitted over a serial bus, which uses isochronous data transmission [see column 1 lines 29-67]).

Referring to claim 9, Hoch, in view of Parker, discloses the communications apparatus as discussed above. Furthermore, Parker discloses that the transmission means broadcasts said plural data packets (the multiple packets are transmitted over the serial bus which is connected to a plurality of nodes [see figure 1B]).

Referring to claim 10, Hoch, in view of Parker, discloses the communications apparatus as discussed above. Furthermore, Parker discloses that the transmission means is a digital interface based on the IEEE 1394 standard (the packets are transmitted over a bus, which uses the IEEE 1394 standard [see column 1 lines 38-41]).

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Packer.

Referring to claim 23, Packer discloses the data communication apparatus as discussed in the 35 U.S.C. 102(a) rejection of claim 21. Packer does not particularly

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disclose that the first transfer rate is the maximum transfer rate supported by the transmission means. However is well know in the art that transferring data at its maximum rate decreases the amount of line utilization and thus increases line efficiency. Therefore, it would have been obvious to one skilled in the art at the time of the invention to transfer the data at the maximum supported rate due to the line efficiency that is gained by doing so.

8. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Packer in view of U.S. Patent Number 5,459,725 to Bodner et al., hereafter referred to as Bodner.

Referring to claim 24, Packer discloses the data communications apparatus as discussed above, in the 35 U.S.C. 102 (a) rejection of claim 21. Furthermore, Packer discloses that said transmission means identifies said predetermined transfer rate as the maximum transfer rate to the destinations based on the responses from the destinations (establishing a limit on the rate of packet transfer between the first digital packet transmission station and the second digital packet transmission station based on information in the acknowledgment packet sent back to the first digital packet transmission station by the second digital packet transmission station [see claim 1]). However, Packer does not particularly disclose that the transmitter wait a predetermined period of time for receiving all of the responses. Bodner discloses waiting a predetermined period for all the responses from the destinations to be received (the transmitter times-out after a predetermined period of time in which acknowledgements

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have not been received from neighbors [see claim 5]). It would have been obvious to one skilled in the art at the time of the invention to utilize the timing-out method as taught by Bodner in the apparatus of Packer because, as Bodner points out in column 3 lines 12 and 13, such a method would increase the speed of reliable transmission to all nodes.

Referring to claim 25, Packer discloses the data communications apparatus as discussed above, in the 35 U.S.C. 102 (a) rejection of claim 21. Furthermore, Packer discloses that the transmission means retransmit said predetermined packet at said second transfer rate (retransmitting a data packet, at a different rate, which is established by information in the acknowledgment packet sent back to the first digital packet transmission station by the second digital packet transmission [see claim 1]). However, Packer does not particularly disclose that the transmitter wait a predetermined period of time for receiving all of the responses. Bodner discloses waiting a predetermined period for all the responses from the destinations to be received (the transmitter times-out after a predetermined period of time in which acknowledgements have not been received from neighbors [see claim 5]). It would have been obvious to one skilled in the art at the time of the invention to utilize the timing-out method as taught by Bodner in the apparatus of Packer because, as Bodner points out in column 3 lines 12 and 13, such a method would increase the speed of reliable transmission to all nodes.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Packer in view of U.S. Patent Number 5,751,967 to Raab et al., hereafter referred to as Raab.

Referring to claim 26, Packer discloses the data communication apparatus as discussed in the 35 U.S.C. 102(a) rejection of claim 21. Packer does not disclose automatically detecting the network configuration. Raab discloses that the transmission means automatically detects a change in the connection configuration of a network (automatic process that detects changes to the network topology [see column 11 lines 35-56]). It would have been obvious to one skilled in the art at the time of the invention to use the automatic detection method taught by Raab in the apparatus of Packer because such a method would provide a more up-to-date and thus more accurate routing of the data packets.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Pat. No. 5559967 to Oprescu et al. discloses a method and apparatus for a dynamic, multi-speed bus architecture in which an exchange of speed messages occurs independent of the data signal transfers.
- b. U.S. Pat. No. 6128316 to Takeda et al. discloses a data transmitting apparatus data receiving apparatus and data transmission control apparatus.
- c. U.S. Pat. No. 6157650 to Okuyama et al. discloses a method and apparatus for connecting network.

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d. U.S. Pat. No. 6006286 to Baker et al. discloses a system for controlling data packet transfers by associating plurality of data packet transfer control instructions in packet control list including plurality of related logical functions.

e. U.S. Pat. No. 5289582 to Hirata et al. discloses a communication control unit.

f. U.S. Pat. No. 6266727 to Smyers et al. discloses an isochronous data pipe for managing and manipulating a high-speed stream of isochronous data flowing between an application and a bus structure.

g. U.S. Pat. No. 4839891 to Kobayashi et al. discloses a method for controlling data flow.

h. U.S. Pat. No. 5450438 to Landry et al. discloses a fallback method to 1200 bits per second for use in mobile radio.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Odland whose telephone number is (703) 305-3231. The examiner can normally be reached on Mon-Fri 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached at (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

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HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600